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ABSTRACT

In eight Title I classrooms 32 first grade students were observed as they completed reading and writing assignments without continuous teacher supervision. Observations focused on the students' immediate responses, such as attention, performance on the assignment, and reported understanding of the task. Two working hypotheses are presented about the nature of the students' cognitive processing while doing these unsupervised assignments. (1) Many students attend more closely to content coverage than to content mastery, perhaps because of teachers' emphasis on procedural directions and lack of emphasis on content-related purposes of the assignments. (2) Emphasis on content coverage in combination with difficult assignments may create a condition in which low achievers develop strategies to complete work without developing strategies that help them make sense of their work. Further data analysis is being conducted to test these two hypotheses. (Author/DB)

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Research Series No. 102

STUDENT RESPONSES TO SEATWORK: IMPLICATIONS FOR THE STUDY OF STUDENTS' COGNITIVE PROCESSING

Linda M. Anderson

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Abstract

Thirty-two first grade students in eight Title I classrooms were observed as they completed seatwork assignments. Observations focused on the students' immediate responses, such as attention, performance on the assignment, and reported understanding of the task. Two working hypotheses are presented about the nature of students' cognitive processing while doing seatwork. First, it is hypothesized that many students attend more closely to content coverage than content mastery, perhaps because of the teachers' emphasis on procedural directions and lack of emphasis on content-related purposes of seatwork. Second, the combination of the emphasis on content coverage and difficult assignments may create a condition in which low achievers develop strategies to complete work without developing strategies that help them make sense of their work. These two hypotheses will be tested in further data analysis.

STUDENT RESPONSES TO SEATWORK: IMPLICATIONS FOR THE STUDY OF STUDENTS' COGNITIVE PROCESSING[1]

Linda M. Anderson[2,3]

This paper reports work in progress on the IRT Student Responses to Classroom Instruction Project. Although data collection is not yet completed, analyses to date have suggested some patterns of student responses that may be linked to students' thinking as they deal with their daily seatwork assignments.

Other research has directly investigated students' cognitive processes by asking students specific questions about their thinking about particular instructional events (Marx, Note 1; Morine-Dershimer, Note 2; Peterson, Braverman, Buss, & Swing, Note 3; Winne, Note 4). Such studies represent an important step toward applying cognitive theories of learning to the study of instruction. However, before the results of such studies can be widely applied to classroom practice, this increasing knowledge about students' cognitive processes must be merged with knowledge of the varied classroom contexts in which that cognitive processing occurs,

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[1]This paper was originally titled "Examining Students' Cognitions About Teaching Using Process Measures." It was presented in a symposium, "Students' Cognitive Processing During Teaching," at the Annual Meeting of the American Educational Research Association, Los Angeles, April, 1981.

[2]Linda M. Anderson coordinates the Student Responses to Classroom Instruction Project and co-coordinates the Conceptions of Reading Project. She is also an assistant professor in MSU's Department of Student Teaching and Professional Development.

[3]Ideas discussed in this paper grew out of research done with Jan Alleman-Brooks, Nancy Brubaker, and Gerald Duffy, and the content of this paper reflects the contributions of all members of the research team. The "we" referred to in the text includes the whole team, although the author assumes responsibility for any errors in or weaknesses of this paper. Discussions with Phyllis Blumenfeld and Jere Brophy were also very helpful.

and with knowledge about students' perceptions of those contexts.

It is the purpose of this paper to describe one aspect of classroom life--seatwork assignments--and to present some working hypotheses about contextual factors that may influence students' cognitive processes while they carry out seatwork. In particular, work on the Student Response Study has caused us to ask how students understand the content-related purposes of seatwork assignments, and how their understanding influences the ways that they think as they perform those assignments.

Background

The Student Response Study focuses on students' immediate responses to instruction as important short-term outcomes of teaching. Most research on teaching effects has used long-term outcome measures as criteria (e.g., achievement tests). In this study, we have focused on students' daily responses--both behavioral and cognitive--as immediate indicators of instructional effects. A basic assumption underlying the study was that learning from classroom instruction can occur most readily when students respond to instructional stimuli in a cognitively active and generally successful manner. Thus, we wanted to learn more about instructional contexts that support active and successful student responses. Our first step toward this goal has been to describe patterns of student responses in eight first-grade classrooms.

In particular, we wanted to look at the responses of students to "seatwork:" assignments that usually involve reading and writing that are given to students to be carried out independently, without continuous teacher supervision. Our interest in seatwork was based on the pervasiveness of this format in elementary classrooms. One recent study determined that elementary students spend up to 70% of

their allotted instructional time doing seatwork (Fisher, Filby, Marliave, Cahen, Dishaw, Moor, & Berliner, Note 5). In spite of this, little is known about what students do and think as they perform seatwork (Rosenshine, 1980).

In addition to our interest in seatwork and how students respond to and learn from it, we were also interested in focusing on young children in primary grades who were learning how to read and to do classroom work.

Therefore, a study was designed to describe ways in which first-grade students responded to and dealt with seatwork and other forms of reading instruction. The student responses of most interest were the apparent focus of the students' attention, the nature of the students' involvement with instructional stimuli (e.g., how do they approach a written assignment), initiative taken by the students to seek help when they were confused or unable to answer something correctly, the level of success on daily seatwork assignments, and student perceptions of how and why they were doing daily seatwork tasks.

Methodology

We have been conducting observations in eight first-grade classrooms in four Title I schools in a midwestern city. Observations began in October, 1980, and will continue through April, 1981. All classrooms are self-contained and taught by one teacher, although some of the teachers also have aides for part of the day. Ten teachers were approached and asked to participate in the study, and eight of them readily agreed.

Within each of these eight classes, four students have been selected as target students for observations: a male and female high

achiever and a male and female low achiever. In order to select target students, we asked teachers to identify those students they considered to be in the highest achieving third and the lowest achieving third of their class. From these two extreme groups, within each class, we randomly selected one boy and one girl for whom we had written parental permission. Our original sample of 32 target students has been reduced slightly by student mobility and absences.

By the end of the study, we will have conducted five three-hour observations of each student over a six-month period. During each visit to the classroom, the observer focuses on two target students who have a similar schedule. This means that we usually focus on students from the same reading group and thus see either the two high achievers or two low achievers on a given day. (Student absences and reading group transfers have led to occasional schedule alterations.)

Observers note detailed descriptions of what the target students are doing throughout the session. The typical procedure is to pay very close attention to one child for about 10 minutes and then switch to the other child. This time sampling approach is used flexibly, so that we sometimes spend more time with one child in order to see, for example, the end of a particular assignment or the end of an interaction with the teacher.

While observing, the observer describes what the child is doing, what (s)he seems to be attending to, how seatwork is approached, what the student does when (s)he encounters a problem, and how successful the student is. The observational record also includes as much information as possible about the instructional stimuli present at the given moment. Copies of the seatwork are obtained or described

in detail. Teacher explanations of assignments are audio-recorded.

After an observation is completed, the observer tapes a detailed narrative record of the morning's observation that includes times. Also noted after the observation is the completed performance of the child on assigned work that day and any teacher feedback on that work.

The resulting data provide a detailed record of what the child did on a minute-to-minute basis. For example,

9:51 J. looks back at the board and writes *te* (copying *yesterday*) and then looks around some and then writes *day*, all at once, without looking at the board for each letter. Then, he glances over toward A., reading, but does not interact with her. (She is reading aloud, to herself, about three feet from J.)

9:52 He goes back to his writing and writes without distraction: *Matt /ha/d* (the slashes indicate where he looked up at the board while he was copying) and then looks up at S. (sitting across the table from him) as the teacher is elaborating on a fact in the story that S. has just read. (The teacher reads with individual students at this table. J. has been called to that table to do his seatwork after the teacher saw him talking to a friend at his desk.) J. looks up at the board and then writes *a c/old*, (the slashes indicate where he locked up at the board while he was copying).

9:53 He moves to the next line and writes *Today is* all at once and then looks up at the girl who has come to the teacher for help, and continues to look at her, until

9:54 the teacher stands up and announces that all students should go to their seats and get ready to line up. It is time for library. The teacher begins to pass out library books to the students to return. J. watches her do this and then leaves his paper on the reading table (unfinished) and lines up as his name is called.

The observational data is supplemented with informal conversations with students about work done that morning, conversations to tap the student's understanding of how and why (s)he did the work. For example, the child might be asked "How did you know to choose this word instead of that word?" or to "Show me how to do this page." Questions designed to elicit the child's understandings of the purpose of the work are "What are you learning about when you do this work?" and "Why do you think your teacher wanted you to do this page?"

The eight teachers have also been interviewed both formally and informally to determine their perspectives on seatwork and its use.

Data Analysis to Date

At present (April, 1981), the project staff are still collecting data, but we have been meeting regularly throughout the year to identify patterns of student responses. Our shared impressions have led us to ask the questions posed earlier about students' understanding of the content-related purposes of assignments and its effect on their thinking as they work. Of particular interest to us as researchers (and of

special concern to us as parents, teachers, and teacher educators) are patterns of student responses suggesting that some seatwork for some students is not perceived in meaningful ways. At least, the meaningfulness apparently perceived by the students is not what we might expect from an adult perspective.

Certainly it is not reasonable to expect that the perspectives of six- and seven-year-olds should always match those of adults. However, we think that the discrepancies (between intended and real student understanding) are important to consider as we examine students' thinking in classroom settings.

Results

Student Understandings of the Content-Related Purposes of Seatwork

One pattern of student responses suggests that many of our target students, both low achievers and high achievers, may believe that the most important aspect of doing their seatwork is simply to get it done.

We began to form this impression as we observed students' behavior while doing seatwork. The following are examples of behavior that, when occurring repeatedly for the same student, indicated to us that students were primarily concerned with getting their work finished:

1. Frequent questions to peers about "How far are you?" and frequent statements of "I'm almost done--just two more" or "I'm ahead of you!"

2. Upon completing the last item on a page, immediately turning it in or moving on to the next page without any indication of checking or reviewing.

3. Completion of work is accompanied by expressions of relief (e.g., a long sigh and "There!" as student is stacking papers, or, as one student was overheard saying to himself, "There! I didn't understand it, but I got it done.")

These behaviors by themselves do not necessarily mean that students are not also attending to the content-related purposes of the work, but our "on-the-spot" interviews with the students have supported the impressions based on behavioral observations. This, an interview with a male high achiever, is one example:

Researcher: Tell me about this work you're doing (as student is working in math workbook).

Student: This is my math. I'm almost done with a unit! Only two more pages. (Said with excitement. A "unit" is a related set of pages in the math workbook. In this class, students are to work through their math workbook, one unit at a time. When a unit is completed, they can take the entire set of pages home, and the teacher announces this to the other students, who usually applaud.)

Researcher: What was this unit about?

Student: Well, when it's done I get to take it home.

Researcher: What were you learning about when you did this unit?

Student: (brief pause, slightly puzzled expression) Oh, I learned how to work hard.

Or consider this exchange, which has occurred with several students:

Researcher: What are you learning about when you do this page?

Student: (shrugs) I don't know.

Researcher: Why did the teacher give you this page to do?

Student: This is just our work (said as if the question seemed very odd to the student).

Some students answer similar questions in terms of broad skill areas: "I'm learning to read better" or "I'm learning how to write." However, we have less often received an answer that describes specific skills being practiced or specific concepts being applied. This is in spite of the fact that many (perhaps the majority) of the seatwork assignments for reading and math have been designed to emphasize a particular skill.

For example, a workbook page listed five sentences that each included words ending in -ot (e.g., "Look out for the hot pot"). Students were to indicate a picture that illustrated the sentence (e.g., to choose a boiling pot instead of a steaming pie or a roasting frankfurter). When asked, "What are you learning about when you do this page?" a student responded, "How to read these sentences and draw circles around the right picture." There was no indication during this conversation that the student recognized the similarity among the sentences or the specific purpose of the page.

Taken all together, the behavioral and student interview data suggest that while doing seatwork, these first-grade students perceive purpose in terms of doing the work and progressing through a book rather than understanding the specific content-related purposes of assignments. At this point, we are not saying that this is either desirable or undesirable, simply that this seems to be a prevalent pattern. We have begun to refer to it as a "content coverage" orientation that can be contrasted to a "content mastery" orientation.

We can only speculate about reasons for this pattern of student response. Certainly, the age and developmental level of the children should be taken into account, in that one would not expect a first-grader to give answers that would suggest a grand scheme for organizing reading skills, or to have a firm set of concepts for thinking about their own learning processes.

However, our observations of the teachers and their presentations of assignments have led us to consider an additional hypothesis. We think that students' perceptions of the purposes of seatwork may be related to the information that they receive from teachers about their work. Although systematic analysis has not been carried out yet, the impressions of the observers at this point are that very few teacher presentations include specific statements about the content-related purposes of assignments. Instead they consist mostly of procedural statements, (e.g., "Read the sentences and circle the picture that goes with each one.") In addition, teacher feedback following completion of work often consists of statements about the correctness of answers and directions for what to do next, but not reminders about the purpose of the page or the content that has been encountered by the student.

We do not know at this point if student perceptions would be different if teachers made more statements to students about content-related purposes, nor do we know if different patterns of student perceptions of purpose would affect students' cognitive processing while carrying out their seatwork. However, our observations and conversations with students have convinced us that questions about students' perceptions of purpose should be considered by researchers in examining students' thinking during instruction and teachers' effects on that thinking.

Low Achievers' Strategies for Completing Difficult Work

Related to the pattern of student responses that indicates attention to content coverage and getting finished (which seems to be present for both high and low achieving students), we have also become interested in another pattern of student responses that is most evident among the low-achieving students. This pattern of responses to seatwork is one in which students successfully develop and use strategies that contribute to content coverage, but that do not necessarily contribute to content mastery or, perhaps more important, to comprehension monitoring and other learning-to-learn skills.

We think this pattern develops when two conditions are present. First, low achievers (or anyone, but it happens most frequently to them) are given work that is not easy enough for them to do quickly, automatically, and with a clear sense of whether they are correct. Second, these assignments are given in a setting where working independently and finishing in the time allotted is valued and encouraged by the teacher. Our present hypothesis is that when these two conditions are frequent, students do not learn to ask whether their work makes sense to them. However, they develop other strategies that allow them to get the answer and get finished.

This hypothesis will be tested through systematic analyses of the data later this year. The following are examples of incidents that have led us to formulate the hypothesis.

> Sally (a low-achieving target student) is working on an assignment that requires her to copy sentences off the board, read them, and draw pictures to illustrate that she understands them (e.g., "The green car is coming down the road"). She copies a sentence correctly, looking at

the board frequently, appearing to copy it letter by letter (rather than in words or phrases, as is usually done by higher achievers). When finished with a sentence, she looks at her neighbor's paper or asks a friend, "What do we draw here?" The friend answers, "a green car," and Sally draws it. When the observer asked Sally to read the sentences, she could not. However, she was able to complete the paper in this fashion and thus go to lunch and recess.

Ron (a low-achieving target student), along with all other students in the class, is to spend his 30 minutes of allotted seatwork time composing a story about "My Family." (The teacher has begun to use one morning a week for creative writing assignments; this is the second week.) She writes on the board some words that they might want to use in writing a story about "My Family," although she emphasizes that spelling "does not count." Ron writes the following story by himself:

You can be my brother.

You can be my puppy.

I like my pup.

I like my father.

I like my mother.

I am happy.

When the observer asked him to read his story to her, he hesitated on the word *my* (because his *y* was not clearly a *y* and he read it as a *t*). He did not attempt to read

> the words *brother, puppy, pup, father,* or *mother*; instead he stared at each of them for several seconds and then asked what they were. After they finished reading his story, the observer asked him how he knew to write the word *father* where he wrote it. He pointed to the board and said, "I got it off there."

Ron had used his understanding of sentence structure and functions of various words to create an acceptable product. (It was later marked "good" by the teacher, although he was not one of five students who were asked to read their stories to the class.) However, his inability to read what he had written suggested to us that the act of writing the story may have been driven by the need to get it done rather than an interest in communicating his thoughts about his family. This is post hoc conjecture, of course, but the incident is consistent with other observations of Ron in which he behaved in ways that kept the teacher "off his case" and minimized contacts with her, academic or otherwise. His work was frequently difficult for him, but he always got it finished, usually with some incorrect answers. Conversations with him frequently revealed a lack of concepts or skills that were presumably necessary for the work given to him.

> Sean (a low-achieving target student) is in a class where students do "individualized" work. This means that all students proceed through the same reading and math books, but they "move at their own pace," according to the teacher. The pace seemed to be determined by how long it took each student to get through a page and get the teacher's

attention for checking, rather than additional time spent in special instruction. During a recent observation, Sean was assigned a page from his reading workbook that emphasized words ending in *-ake* (e.g., cake, make, take). There were six sentences to read and six pictures to match to them. The observer asked Sean to tell her about the page while he was doing it. He readily agreed and began reading aloud. He read most of the *-ake* words as *cake,* and most of his sentences did not make sense due to frequent miscalls. However, he did not seem disturbed by the lack of sense of the sentences, and he quickly drew lines to whatever picture he thought went with it. He proceeded through the six sentences, getting three correct despite his misreading. The first one that was correct was the picture closest to the sentence. (On the next assignment, Sean was also observed using a similar "proximity" principle to determine how to find the correct choice.) The last sentence was done correctly without Sean even reading the sentence because as he explained, "There's only one picture left, so that's the answer." Coincidentally, it was the right one. Throughout this session, Sean did not indicate that he was aware that he was making errors nor did he demonstrate any concern that what he read was nonsense. As soon as he drew the line between the last sentence and picture, he immediately turned to the next page of his workbook and continued.

Such incidents have led us to hypothesize that one result of a combination of inappropriate (i.e., difficult) assignments and the emphasis on finishing work may be that students come to define success on seatwork in terms of completion instead of understanding. This way of defining success may occur for high achievers as well as low achievers, but is more likely to be detrimental to low achievers. High achievers are usually working at a higher level of success than are low achievers and thus are probably gaining more from the practice opportunities afforded by seatwork; that is, they are at least building a solid set of basic skills.[4] It seems more likely that the high achievers (compared to low achievers) come to expect their reading seatwork to make sense to them, because it is more often assimilable or at their "independent level." This in turn may make it more likely that they develop adaptive learning-to-learn skills as they continue through school. When something does not make sense or seems confusing, it is an unusual event to a high achiever and therefore more salient and likely to trigger action to reduce confusion and/or add necessary information.[5] This highlighting

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[4]It is the observers' impression at this point (to be tested systematically) that assignments given to low achievers are more often difficult for them than assignments given to high achievers. Thus the statement that high achievers are more often successful is meant to reflect the level of difficulty relative to the child's ability, not the absolute ability per se. Given optimal matching of assignments and students, high and low achievers could be equally successful on their assignments, although overall differences in levels of achievement could be maintained.

[5]Again, it is important to realize that this assertion is not based entirely on the aptitude differences between high and low achievers (although those are influential as well). The point here is that the history of a student's experiences with school tasks can influence his/her expectations that assignments, text, instruction, and the like, can and should make sense, and these expectations in turn will influence a student's responses to difficult material.

of unexpected misunderstanding may help further the development of metacognitive skills, which could aid in information-seeking to reduce confusion, even though formal instruction seldom is focused on the development of such skills.

On the other hand, low achievers, who we have seen more often with assignments that seem difficult for them, may be less likely to expect their work to make sense. That is, sense is not predictable, and so a lack of sense (i.e., recognizing that you do not understand) is not unusual. If something is not unusual, then it is not as likely to serve as a signal that something is wrong and needs resolution. However, other elements of classroom life are probably more predictable to low achievers than their assignments making sense. We think that the rewards and sanctions attached to finishing work and covering content are predictable, at least in the classrooms we have observed. Given unpredictability about how easily assignments can be comprehended, it is not surprising that low achievers may focus their immediate goals while doing seatwork on the predictable elements, such as the need to get it done and move on. Over time, this approach may prevent the development of metacognitive skills that allow students to become better guides of their own learning.

Conclusion

Thus, at the present time, the thinking of the Student Response Project researchers is that we should be asking two related questions about students' cognitive processing while carrying out seatwork assignments, and about the context in which the assignments are given. First, do the students perceive content-related purposes of the work, and how are their perceptions influenced by the teacher's presentations and standards for work completion? Secondly, how does student

understanding of seatwork purposes interact with the comprehensibility of that work to the student to affect the strategies used in completing the assignment, and how might this interaction over time contribute to the development of various metacognitive or "learning-to-learn" skills?

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